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Autumn Work Among the Trees.

ALL planting north of the latitude of this city is most safely done in the spring. Further south the long autumn enables trees, planted when the leaves are ripe, to push out new roots and establish themselves before the ground freezes. But where cold weather follows close after the early frosts a tree planted in the autumn has no opportunity to develop new roots, and therefore loses not only the advantage it would have obtained in a more temperate climate in an early and vigorous spring growth, but it is forced to endure the severity of the winter without the aid of roots in active working condition. Trees planted in the autumn do not always die in the Northern States; but they are more apt to suffer than those planted in the spring; they are often blown over unless carefully supported; and they are frequently heaved by the frost or thrown out of the ground entirely. But for all the operations connected with the planting and the care of trees, except the mere setting them in the ground, the autumn is the right time. All planting plans should be completed, and all stock selected, at this season, and the ground to be planted should be prepared and ready to receive the trees. Our springs are so short and the rush of spring work is always so pressing that it is impossible to properly prepare the ground for planting unless it is done during the summer and autumn. This is the time, therefore, when northern planters should decide what trees they want to plant next spring, and just where they will plant them. It is the time to select and order nursery stock; and if the planter has any facilities for protecting plants through the winter in a cold cellar or pit this is the time to obtain them from the nursery, rather than in the spring, when nurserymen are crowded with orders, and too busy to devote proper time and attention to digging and packing their trees. The ground being prepared, the exact position of each plant determined on and the plants on hand, the mere setting them in the ground is the work of a short time. The man, moreover, who is thus prepared beforehand for spring planting can take advantage of the first suitable weather, and get his plants into the ground as soon as the frost is out and it is dry enough to work; while if he waits for material ordered in the spring, very often it will not be received until after the trees have started to grow, and warm, dry weather has set in. In a climate like that of our Northern States, where summer follows hard after winter, and where spring is almost unknown, there is no other operation of the farm or of the garden which demands more carefully planned preparation—more forehandedness—than tree-planting.

The autumn, too, after the leaves have begun to fall from the trees, is the best time to study plantations with the view of determining which trees should be removed, and which of those which are to remain need pruning. The actual condition of a tree—its health and shape, and its relation to its neighbors—is best determined after the leaves, or many of them, have fallen; and if trees are to be marked for the axe, it should be done now, and before really cold weather or snow makes the critical examination of each individual practically impossible. The autumn, too, as has been explained in a recent issue of this journal, is the best time for all pruning operations intended to rejuvenate old trees or to bring unsightly ones into shape.

The man, therefore, who has trees, should devote some portion of these autumn days to determining how he can improve them by thinning or by pruning, or, if he is a planter, in deciding where his next spring's plantations are to be made, and what they are to be made of.

West Indian Fruit Growing.

A LARGE part of the September issue of the *Kew Bulletin of Miscellaneous Information* is devoted to the consideration of the fruit-producing capacity of the Island of Dominica, a subject of very great interest to Americans in view of the immense development, in recent years, of the tropical-fruit business in the United States and of the probability of its much greater development in the future. From its earliest settlement Dominica has been celebrated for its fruit. As long ago as 1791 great quantities of Oranges and Lemons of excellent quality were sent from the island to England and the United States, and some of the neighboring islands, less fortunate in natural conditions, were supplied from the Orange groves of Dominica. Sixty different fruits, indigenous and exotic, are described as reaching perfection on the island, which "of all the British possessions in the Lesser Antilles is now regarded as having the best promise of the development of a large and remunerative fruit trade, not only with the United States and Canada, but also with Europe. The islands lying between Dominica and the mainland of North America, with the exception, perhaps, of the small colony of Montserrat, are not adapted for the cultivation of most of the tropical and sub-tropical fruits, by reason of the droughts to which they are sometimes subject. Thus it happens that Dominica is the nearest fruit-producing island of the Lesser Antilles to the United States and Canada, and it is also the nearest of the West Indian fruit islands to Great Britain. This is an important fact in regard to the future of the fruit trade between Great Britain and North America and the Lesser Antilles, for with so perishable an article as fruit even a few hours' curtailment of an ocean voyage means sometimes all the difference between profit and loss. Possessing a fertile soil, unsurpassed in any other part of the world, an abundant rainfall, and a wide diversity of climate, owing to the mountainous nature of the country, the capabilities of Dominica for the culture of tropical and sub-tropical fruits can scarcely be overestimated."

In spite of its natural advantages the fruit business of Dominica is still in an unsatisfactory condition, the value of the total fruit exports for the year 1887 having been under $50,000, which is about three times, however, the value of the export ten years before. This is due no doubt to the want of energy and enterprise on the part of the

planters, who seem to take matters very much as they find them, and are satisfied to conduct their business as it was done a century ago, to the neglect of modern methods and improved varieties. This is especially true of the Orange business throughout the West Indies, which largely depends for its supply of fruit upon "trees which have grown up, in most cases accidentally, in gardens, in odd corners of estates, and by the roadside." That West Indian Oranges are as good as they are is only an indication of the fitness of the soil and climate of the Antilles for the production of this fruit. If half the energy and intelligence which have been directed to the improvement and cultivation of the Orange in Florida could be given to perfecting this fruit in islands like Dominica or Jamaica, the result would be astonishing, both in the quality of the fruit produced and in the profits of the business. The little island of Montserrat, now the principal centre of the Lime-juice industry, shows how profitable tropical fruit-growing can be made when carried on under ordinarily good methods. This business on the island is constantly increasing, and has already assumed very important proportions, and Montserrat Lime-juice is now sent all over the world.

It may be added, in this connection, that the Lime-tree now grows spontaneously on the south Florida Keys, producing fruit of large size and the very best quality. The climate of these islands is better adapted to the cultivation of this fruit on an extensive scale than it is either for Pineapples—which, although grown there in large quantities, suffer during cold winters, and are very inferior in quality to those raised in the West Indies—or for Cocoanuts, which have lately been planted largely in south Florida. The Cocoanut, it is true, bears fruit at several places on the Florida coast, but the fruit is small and not of first-rate quality, and can never compete with that brought to our markets from Honduras and other Central American countries. Lime-juice factories on Key West or on the shores of Bay Biscayne might be made profitable investments, and would do much to develop the resources and prosperity of southern Florida.

The Charles River at Wellesley.

THE Charles River, which pursues a very devious course through the eastern part of Massachusetts and empties into Boston Bay, is, of all the rivers of New England, the one that is richest in poetical associations. The Hudson, with the grandeur of which it would be foolish to compare the humbler loveliness of the Charles, is more widely known through prose descriptions, and has not failed of its meed of poetical praise as well. But the Charles is so intimately associated with the lives and writings of so many poets, that even the Hudson hardly appeals as strongly to those who know and love the literature of our country. Our illustration is given to show the character of the stream at a point considerably removed from that where it becomes the broad estuary so well known to every one who has visited Boston—a point where it is truly the Charles of the poets. And the picture should have a double interest, as revealing how much a view of this sort may gain by being set, so to say, in a frame. This particular bridge, which serves to carry the water which supplies the City of Boston, is not especially to be commended for architectural beauty—its curve is somewhat too widely spread and the size of its arch-stones is hardly sufficient to give the desirable impression of sturdiness. But it serves the purpose of a frame for the landscape well enough; and it need hardly be added that effects analogous to those produced by its arch can be produced, when openings of a less diameter are in question, by the skillful planting or cutting of trees. Take away this frame, and we have a pretty bit of river, but scarcely a picture; and a picture may be made of the simplest outlook which has any elements of beauty, either natural or artificial, by supplying a frame of the proper size and in the proper place, no matter what materials may be chosen for the purpose. Even a rustic gateway may be so built as to serve this purpose, and in the shaping and disposition of the windows of a country house results of this sort should be more often considered than they are.

California Woods in Autumn.

ALTHOUGH California lies wholly within latitudes which, in other lands, give marked changes of the seasons, yet here neither spring nor autumn is very definitely characterized; autumn less so than spring, if that may be called a vernal season which begins in November or December, comes to a halt in January, thence gradually advancing to its perfection in April, a half year after it begins.

Between July and November the face of nature undergoes but little change; and only the eye of the artist or naturalist will perceive the transition to autumn. The Dahlias, the China Asters and the late Chrysanthemums are in the gardens, blooming at the right season, too, and these give a little of the autumnal aspect to village and home, especially where late autumn fruits are ripening on the trees, and eastern Elms and Maples, planted along the streets, are shedding the yellow or brown leaf. But out among the hills it is scarcely so. The native trees, even to the Oaks, are chiefly evergreen; and even such Oaks as are really deciduous retain their foliage in full color until the dark rainy days of December, baring their gray trunks and branches not until the ground beneath and around them is bright green with fresh growing grass like that of spring.

There are, nevertheless, some autumnal wild flowers in California; and even a few trees whose altered foliage imparts, in September, an autumnal aspect to the tree-clad slopes of all mountainous and hilly districts. Wherever, in the near or distant landscape, a patch of deep yellow comes out in contrast with the dark but vivid green of Oaks and Bays, one knows it must be a clump of the native Maple (*Acer macrophyllum*); a tree distinguished from all others of its genus by the uncommon size of its leaves, which, in California, are half a foot broad on thrifty trees, in Oregon even larger. It nowhere makes up a forest, or even a small grove, by itself; only two or three in a place, or, at most, an interrupted succession of them, ranging up and down the course of a ravine or brook, are what one sees of this species in its native wilds. The foliage ripens and turns to yellow long in advance of the earliest frosts, so that before the equinox it is in its richest and decidedly autumnal garb.

In the higher Sierra only, and chiefly toward the northern boundaries of the State, occurs a smaller Maple (*Acer glabrum*), the leaves of which acquire an almost crimson hue as the autumn days advance; but this species is never met with in the more settled, western regions of California, with which we are concerned. The only red leaves here are those of the Wild Grape (*Vitis Californica*) and of the everywhere too prevalent Poison Oak (*Rhus diversiloba*). This last is altogether distinct from its east American analogue, having foliage of firmer texture and more rounded outline. In its autumnal dress it is truly beautiful, but this is taken on, at least in some parts of the country, as early as August, before we begin to think of the fall of the year. The same is true of another small deciduous tree, the native Horse Chestnut (*Æsculus Californica*), whose fading leaves of yellow and red-brown are sufficiently autumn-like, in whatever more elevated districts they do not fall before the end of summer.

With Asters and Golden Rods, Pacific North America is not well furnished. In the western parts of California we have but two or three species of each; and the most common of the Golden Rods (*Solidago Californica*) is almost gone before the autumnal days begin. One of the Asters (*A. radulinus*), a white-flowered, low species, with a simple flat-topped corymb crowning the leafy stalk, is met with along the borders of roads and thickets, but scarcely elsewhere. This also comes near being a summer flower; but it is in pretty condition in the early part of September. The blue-flowered species (*A. Chilensis*) is taller and more showy, quite like some of the eastern Asters, and it flowers quite late, growing chiefly in low, half marshy grounds, not far back from the sea.

The characteristic autumnal wild flowers of California are the various species of Madia and Hemizonia, known in everyday life by the not very promising appellation of Tar Weeds. With an abundant resinous hairiness, such as most of the kinds are invested with, they are not pleasant plants to handle or to walk among; but they grow in masses, on open hill-sides,

by streamlets in the woods, in stubble fields by acres, their white or yellow flowers giving color to miles of territory, but only in the early part of the day; for their broad and handsome rays, at least those of most species, wither like the corollas of Morning Glories, or Four O'Clocks, as soon as the sun is in mid-sky. The tallest species (*Madia elegans*) is a strikingly showy, Coreopsis-like plant, altogether neat and graceful, however offensive its tar-like stickiness is to the touch. The rays, one inch long and deeply three-lobed, are of a lively yellow, with a velvety red base. The heads are borne loosely and somewhat pendently at the ends of slender, almost leafless branchlets, the main stem standing six feet high or more. No lover of things beautiful can fail to admire the uncommon grace and coloring of this Madia, as it lightens up the roadsides and banks of streams through miles of mountain forests.

Afar from the fields and waysides, in deep mountain shades, where, after the drought of more than half a year, the streamlets are still flowing, one may find in October fine masses of flowers and ferns; not strictly autumnal plants, yet such as, at least, have the faculty of putting forth just now a second and a truly autumnal display of color. Such are two or three species of Mimulus. We shall find no scarlet to match that of the Lobelia of eastern brook-sides, but the *Mimulus cardinalis* is scarcely inferior to that; and the banks of *Mimulus inodorus*, often two feet high, and seeming like an overgrown, large-flowered and scentless Musk Mimulus, are a charming sight.

Another plant, one of the Saxifrage tribe (*Boykinia occidentalis*), with most elegant foliage and loose panicles of white or pinkish flowers, lingers in bloom from June until October. Here, too, the brilliant pendants of Euonymus and the large red globes of Cornel berries (*Cornus Nuttallii*), and the falling acorns of the California evergreen Chestnut Oak, all blend their sweet influences, and make us feel that, even in California, there are autumnal days. *Edw. L. Greene.*

Oakland, Cal.

The Centennial of the Fuchsia.

IF there is one plant which has reached the maximum of popularity it is certainly the Fuchsia. Every one knows this charming shrub, with its highly-colored flowers. In winter one finds it in the green-houses; it decorates our homes in spring, and in summer it adorns our gardens, and it may be seen in every window.

It is just a century since the first Fuchsia (*Fuchsia coccinea*) was introduced into Europe. Since that time travelers in the mountains of tropical America have discovered numerous varieties and brought back specimens. A. De Candolle, in the "*Prodromus*," mentions twenty-six species, which number was increased to forty by Dietrich in his "*Synopsis Plantarum*." Now there are fifty distinct species known.

As to the number of varieties which are the result of the crossing of these species it is impossible to get even an approximate idea. Mr. Porcher, in the fourth edition of his work on Fuchsias, published in 1874, describes or mentions more than 300 varieties, selected from the most beautiful. Few plants lend themselves so readily to hybridization. We cannot discuss these varieties here, as it would require a volume to mention them even, but it may be interesting for some of our readers to know the primitive type of the varieties which they cultivate, or, at least, the groups to which they belong. We shall briefly summarize, therefore, the different sections under which Fuchsias have been arranged, with a short description of the species which have been introduced.

De Candolle adopts the following classification:

FIRST SECTION.

Calyx-tube cylindrical or obconical, narrowed above the ovary; leaves opposite, verticalate or rarely almost alternate; ovules in two ranks in each cell.

1. *Breviflorœ.*—Tube of the corolla as long as or shorter than the lobes, stamens included.

2. *Macrostemoneæ.*—Tube of the corolla as long as or shorter than the lobes.

3. *Longiflorœ.*—Tube of the corolla two or three times as long as the lobes.

SECOND SECTION.

Tube gibous at the base below the ovary; ovules minute, grouped without order about a central placenta; leaves alternate.

This section included a single species only, *F. excorticata*, when De Candolle published his monograph.

FIRST SECTION.

1. *Breviflores.*—This group is composed of species with small flowers, nearly all of which are in cultivation.

I. Cultivated Species.

F. microphylla, a handsome shrub, with numerous devaricate branches and abundant small red flowers.

F. lycioides, one of the first species introduced. Brought from Chili by Menzies about 1796, and now rarely cultivated.

F. thymifolia, a species near *F. microphylla*, from which it may be distinguished by its nearly entire pubescent leaves and by its greenish sepals.

F. bacillaris, a dwarf species, with bright rose-colored flowers, the petals broad in comparison with the sepals.

F. cylindracea, with cylindrical flowers.

F. acinifolia, with very small leaves. Introduced about 1840, and now lost from gardens.

II. Species not Introduced.

F. tetradactyla, Guatemala.
F. Notarisii, Mexico.
F. spinosa, Chili.

2. *Macrostemonæ.*—In this group, which has few representatives, there are a small number of species in cultivation.

I. Cultivated Species.

F. Magellanica (*F. macrostemma*, Ruiz and Pav.), first introduced under the name of *F. coccinea*. Several forms of this plant have been described by different botanists as species, and have been introduced into cultivation. Among them are *F. conica*, so named on account of the shape of the calyx; *F. globosa*, named from the shape of the flower buds. According to Don, this variety was raised from the seed of *F. conica*. It is possible, if this plant is only a variety, that it was obtained accidentally, although it is certainly found in a state of nature. Some authors are of the opinion that it is a native of Chili, and I have found it myself in May, 1876, in New Grenada. It is the only form of *F. Magellanica* that I saw growing wild. There is reason to believe, therefore, that it is not a hybrid, and the fixity of its characters will cause it to be considered, perhaps, a species. *F. discolor*, *F. gracilis*, and its variety, *F. decussata*, *F. recurvata*, *F. araucaria*, are also considered to be spontaneous varieties of *F. Magellanica*. The hybrids of these varieties obtained by cultivation are now innumerable. To this section also belong *F. coccinea*, a Brazilian species (*Botanical Magazine*, *t.* 5,740), which was for a long time confounded with *F. Magellanica*; *F. arborescens*, which looks like almost anything rather than a *Fuchsia*; *F. racemosa* and *F. syringæflora*, varieties of this species, which is a native of Mexico; *F. alpestris*, a Brazilian species, with large leaves and inconspicuous flowers, rare; *F. peniculator*, near *F. arborescens*, was introduced from Guatemala in 1856, and is rarely seen in cultivation.

II. Species not Introduced.

F. ovalis, of Peru; *F. pubescens*, Brazil; *F. integrifolia*; *F. radicans*, Brazil; *F. verrucosa*, New Grenada.

III. *Longiflores.*—A group containing the largest number of species, most from the north-western part of South America, and corresponding to Endlicher's sub-genus Fuchsia.

I. Species in Cultivation.

F. corymbiflora, a species with large leaves and terminal clusters of dark red flowers. There is a variety with white flowers.

F. Boliviana, a species near the last, and introduced into England about a dozen years ago, and about which little is known.

F. fulgens, a showy Mexican species, with denticulate leaves and long vermilion-colored flowers hanging from the extremity of the branches.

F. dependens, near *F. corymbiflora*, but with smaller leaves in fours.

F. apetala, a species with apetalous flowers, less known than the following.

F. mærantha, discovered in Peru by Mathews, and by Lobb in Colombia, who sent it to Europe. Its flowers, without petals and with a very long, dark-reddish purple calyx, are very beautiful; unfortunately the plant is delicate.

F. petiolaris (*F. miniata*, Planchon and Linden), a native of New Grenada, with axillary flowers with a purple vermilion calyx and small red petals.

F. bensta, a species near the last, with vermilion-orange undulate petals; discovered by Humboldt and Bonpland, in New Grenada.

F. serratifolia, a handsome shrub, with bright, rose-colored axillary flowers. This species, a native of Peru, has furnished our gardens with many varieties.

F. spectabilis, introduced from Ecuador about 1848; distinguished by the length of its reddish-purple calyx tube. The spreading petals are vermilion.

F. splendens, a Mexican species, with the reddish-purple calyx tube contracted at the base, with green sepals and yellowish petals.

F. cordifolia, discovered in Guatemala by Hartweg, who introduced it into Europe. Near *F. splendens*, from which it may be distinguished by its cordate leaves and longer flowers.

F. penduliflora, a recent introduction; the flowers in axillary and terminal clusters; the calyx-tube crimson flushed with chestnut.

F. sessilifolia, a handsome shrub with long racemes of pendulous flowers, and with oblong-lanceolate, sessile leaves; a native of Colombia.

F. simplicicaulis, a species near *F. corymbiflora* and *F. dependens*; calyx-tube bright rose-colored; petals scarlet.

F. triphylla, the oldest species of Fuchsia known; flowers axillary and in terminal clusters of a uniform scarlet; leaves in threes.

F. caracaseelsis (*F. nigricans*), is no longer in cultivation.

F. ampliata, a superb Peruvian species, with large, vermilion flowers.

II. Species not Introduced.

F. confertifolia, Peru; *F. Hartwegi*, near Huambia; *F. hortella*, Colombia; *F. sylvatica*, Ecuador; *F. umbrosa*, Ecuador; *F. canescens*, Colombia and Peru; *F. seabrinscula*, Peru; *F. agavacensis*, Peru; *F. ampliata*, superb species of Peru; *F. quindiensis*, Quindio; *F. longiflora*, Andes of Q., rare, beautiful species to introduce; *F. loxensis*, Peru; *F. corollata*, Colombia, a very ornamental plant; *F. curviflora*, Colombia; *F. denticulata*, Peru; *F. memlezanacea*, Caracas; *F. salicifolia*, Peru.

SECOND SECTION.

In this section, for a long time, one species only was known; it was cultivated under the name of *F. excorticata*. Its strange flower was more peculiar than attractive, and it has been almost entirely dropped. To this species another has since been added under the name of *F. procumbens*, also interesting solely on account of its peculiarity. These two species are natives of New Zealand. An intermediate form between *F. excorticata* and *F. procumbens*, also found in New Zealand, and called by Hooker *F. Colensoi*, had not been introduced. This last Fuchsia concludes the list of known species.

In traversing the mountains of South America, pre-eminently the country of Fuchsias, I met with a number of these species, and was able to secure numerous specimens, amounting to twenty-two varieties. Sixteen had been gathered by travelers before me, two are new, and four cannot be decided upon, as the specimens are incomplete.

My new species are (1) *F. vulcanica*. Branches, leaves and peduncles covered with short, thick, white, bristly pubescence. Branches rounded with short segments, sessiles, or nearly sessiles, leaves, in threes or fours, elliptical or obovate, abruptly pointed, sparsely toothed, flowers few, solitary, axillary; peduncles short; ovary oblong, calyx red (?) bristly, especially in the young flowers, tube slightly curved, gradually enlarging from the base to the summit; lobes oval-triangular-acuminate; corolla glabrous, bright cherry-red, petals rounded, a third shorter than the sepals, stamen and style exserted. Volcano of Azufral (Colombia).—This Fuchsia is related to *F. ampliata* by the character of its flowers, but differs from it in a remarkable pubescence, perhaps unique among Fuchsias, and by its sessile leaves and by many other characters. (2) *F. scherffiana*.—Rounded branches, delicately bristled, leaves opposite or alternate, petiole with short bristles, full grown blade lanceolate—oblong, acuminate, very obscurely toothed, scilliate, with short bristles on the midrib and secondary ribs of the upper side, and on the midrib of the under side; almost glabrous elsewhere. Flowers few, solitary, axillary; peduncles slender, covered, like the oblong ovary, with a few short hairs. Calyx almost glabrous, ovary red, tube narrow and cylindrical from its base for a third of its length, then gradually enlarged and again cylindrical; lobes oval-lanceolate, long-pointed; corolla, scarlet; petals, oblong-elliptical; the point round cuspidate, a little shorter than the calyx. Stamens and style exserted.

An intermediate species between *F. petiolaris* and *F. triphylla*, distinguished from the first by its very elongated leaves with rather short petioles, its oblong ovary, its smaller sepals and its glabrous petals without hairs; and from *F. triphylla* by its more elongated leaves and its flowers, which are few, larger and not in clusters at the ends of the branches.

The sight of the beauty of these flowers as they grow in their native land awakened the desire in me to see them more widely cultivated. By new crossings of wild species, interesting hybrids would certainly be obtained, and old varieties, of which the characters always turn in about the same circle, would be rejuvenated. *Ed. André, in Revue Horticole.*

Foreign Correspondence.

London Letter.

As autumn advances the fortnightly gatherings of the Royal Horticultural Society become more and more confined to open-air flowers; and hot-house plants and flowers, especially Orchids, are fewer at each meeting. At last Tuesday's show the flower exhibits consisted mainly of Dahlias, which were represented by every class, and made a brilliant display. To these were added a magnificent group of hybrid Cannas from Messrs. Cannell, about which I wrote some time since; some excellent late Roses from the Waltham Cross roseries; a large and most interesting group of Pitcher plants (*Nepenthes*) from Mr. B. S. Williams; and a marvelous array of that splendid bulbous plant, *Nerine Fothergillii major*, from the garden of Baron Schroeder, which is as famous for its Nerines as for its Orchids. Fruits are, of course, one of the predominating features of the autumn meetings, and on this occasion Messrs. Veitch exhibited a fine collection, rich in varieties of Plums, Apples, Pears, Figs and other fruits, which proved a great attraction.

The certificated flowers and plants were more plentiful than usual, most of them being new sorts of Dahlias, chiefly of the show and fancy classes. I will not attempt to describe them fully, that being nearly impossible, as they differ so slightly from each other and from older sorts, while their tints are in most cases so subtle that one cannot invent terms for them. Of the true show and fancy types, the large and globular flowers with shell-like florets arranged with faultless symmetry, a large number were considered worthy of certificates of the first class. Of these Mr. Turner, the famous Dahlia raiser and grower at Slough, sent the following: Maud Fellowes, white florets tipped with purple; Admiration, crimson tipped with white; Hugo, crimson; Agnes, rich yellow. From another raiser came John Cooper, a large and superbly shaped flower, buff flaked with purple. The well-known Dahlia growers, Messrs. Keynes, of Salisbury, secured a certificate for their Matthew, an orange-yellow flower. The Pompon or Bouquet class was represented by numerous new sorts. Mr. Turner's certified sorts were: Vivid, scarlet; Juliette, pale yellow tipped with bright red; and Lothair, orange-red and crimson; while Messrs. Keynes showed Little Ethel, white; Little Darkie, maroon crimson (almost black); Whisper, yellow tipped with buff; Eurydice, purple tipped, with pink florets. The Juarezii, or Cactus flowered section, which is perhaps at the present time the most popular class of Dahlias among us, was represented by some new sorts of distinct and sterling merit, but only two were considered worthy of certificates. These were both from Messrs. Keynes; their names being Honora, a large flower of a bright, clear yellow; and Panthea, a delicate shade of buff yellow. Most numerous of all the classes, because so easily raised, is the single Dahlia, of which there was an endless array of new sorts submitted. The committee, however, do not award certificates for single flowers, except in special cases, because there are already in cultivation such a multitude of really fine kinds of all colors. The only sort certificated on this occasion was one called Lady Montefiore, a finely shaped flower with broad, flat florets of a clear yellow tipped with crimson.

Among other plants certificated was Geoffrey St. Hilaire, shown by Messrs. Veitch, one of the finest of a new race of hybrid Cannas which has been brought into notice recently. It has broad and large leaves of a rich, dark, vinous purple tint, while the massive spike of large flowers is of a brilliant orange-scarlet. It is one of the finest of those recently exhibited. When well grown it is fully five feet high, and makes a stately, fine-foliaged plant, and, like the others, flowers for weeks in succession. A second Canna certificated was that named Paul Bert, shown by Messrs. Cannell, of Swanley. It is not such a fine variety as the last named, but its brilliant scarlet-crimson flowers, borne on large spikes, were very effective. It is a fitting companion to the several new varieties for which Messrs. Cannell have won certificates this season. There is, without question, a bright future for this new race of stove and green-house plants, which, in a warm and dry climate, would flourish out-of-doors.

Nerine excellens, a bulbous green-house plant of great beauty, was worthily certificated. It is a near relative of *N. flexuosa*, a delicate growing kind with wavy petals, whereas the flowers as well as the trusses of *N. excellens* are larger and are of a soft rose pink barred with crimson red. It is as easily grown as the rest of the Nerines.

A Himalayan Lily, *Lilium Wallichianum*, came, as did the Nerine, from Mr. Ware's nurseries. It is an old and tolerably well known Lily, but not of the highest merit, inasmuch as it is capricious under culture. It is not hardy enough for open air culture exclusively, yet it dislikes artificial warmth. The flower itself is beautiful, being about eight inches long, with a slender tube and a wide-spreading mouth. The sepals are of ivory whiteness, but the tube is greenish. It grows about a yard high, and each slender stem bears a solitary, fragrant flower. It is a Lily for specialists; not for general culture.

A very handsome Composite from Colorado, *Aster Townshendii*, or. as it is also called, *A. Bigelovii*, proves itself one of the finest of all our hardy Michaelmas Daisies, and the committee did right in stamping it with a certificate of merit, though it can scarcely be called a new plant, having been in English gardens for over a dozen years. It has flowers about two inches across, with a broad, yellow disc, and long, narrow ray florets of a bright purple. It blooms very freely, numerous flowers being borne on the slender stems, which rise about two feet high. It is, with us, a true, hardy perennial of the highest merit.

Another Composite, also a hardy, herbaceous perennial from Mr. Ware, was certificated. This was a semi-double variety of the now well known *Harpalium rigidum*, a North American plant, one of the finest hardy perennials we have. The new kind (named Semi-plenum) has large flowers, with the florets so much multiplied as to appear to make a double flower. It is quite as vigorous and as free flowering as the type, while the yellow is brighter.

The last certificated novelty was a narrow-leaved form of the common garden Beet, named McGregor's Favorite. The leaves are about an inch broad by six inches long, and of a deep, bronzy crimson. The habit of growth is tufted, and not so coarse as that of the common edible Beet. It was certificated purely as an ornamental plant, as it is thought that it will be useful for the flower garden, especially in working out designs.

Among the other exhibits, the most noteworthy was a fine group of hardy shrubs from the Messrs. Veitch, which comprised such choice things as *Crataegus Pyracantha Lælandei*, with branches thickly laden with scarlet berries, brighter and more numerous than in the old kind; *Berberis Thunbergi*, which, however, was not shown in fine condition, the berries being few and the bushes not in vigorous health; *Daphniphyllum glaucescens viridis*, a variety with greener leaves than the type and quite as handsome. Among the cut Roses were blooms of such lovely sorts as The Bride, Sunset, Papa Gontier (which has at length reached us from America), Grace Darling, Grand Mogul, Lady Mary Fitzwilliam and Madame Guinoisseau, all of which are new or little known sorts that carry excellent autumn flowers.

Mr. B. S. Williams' group of Pitcher plants represented, for the most part, the pretty hybrids raised some years ago by Mr. Taplin in New Jersey. These are at once recognized by their small, neatly shaped pitchers, generally highly colored, and always borne in profusion. Those named Williamsi, Hibberdii, Amabilis, Morganiæ and Henryana are typical of this fine hybrid race, and are becoming quite popular in English hot-houses, being so much more easily grown than other Pitcher plants.

London, September 30th. *W. Goldring.*

New or Little Known Plants.

Hibiscus lasiocarpus.

THE present figure represents one of a group of tall, large flowered American species of Hibiscus, which have been somewhat confused. Their distinguishing characters, as they have been defined by Dr. Gray, consisting mainly in difference of pubescence and color, are such as cannot well be shown in an illustration, so that our figure might be referred nearly as well to any one of the species as to another.

The swamp Rose-mallow, *H. Moscheutos*, is the most common of these, being found through the eastern United States, more frequent in brackish swamps and near the coast, from New England and Lakes Erie and Ontario to Florida and eastern Texas. Its pubescence is wholly a fine, dense tomentum, without any villous hairs, the upper surface of the leaves being nearly or quite glabrous. The flowers are white or rose-color, with or without a crimson base, and the capsule is glabrous or nearly so. The leaves are ovate to lanceolate and acuminate, rounded at base or somewhat heart-shaped, the larger ones usually three-lobed.

H. incanus is very similar, but has sulphur-yellow flowers with a crimson base, and the leaves appear to be mostly ovate-lanceolate. It is found in the swamps of South Carolina and thence to Florida and Alabama, but it has been very rarely collected. Its distinctness from *H. Moscheutos* and from the following species was recognized by Dr. Gray from specimens cultivated last season by Mr. Meehan.

H. lasiocarpus has its leaves nearly equally tomentose on both sides, or rather more coarsely so on the upper surface, and the bracts of the involucre are ciliate. The capsule also is more or less densely hirsute. The leaves are, perhaps, more frequently cordate at base than in *H. Moscheutos*, but the flowers are of the same color. This species ranges from the coast of Georgia to Louisiana and southern Illinois and westward. The extreme western form (var. *occidentalis*, Gray; *H. Californicus*, of Kellogg), of Chihuahua and the swamps bordering the rivers of California, differs merely in the leaves being more uniformly heart-shaped at base, and the capsule pubescent rather than hirsute. This is the form which is represented by Mr. Faxon in our illustration. *S. W.*

Cultural Department.

The Cultivation of Ferns.

FERNS are propagated by the spores or seed and in some varieties by division of the plant itself; while with others, such as many of the Davallias and some other varieties that produce creeping rhizomes, the runners are pegged down and allowed to root, when they can be easily separated from the parent plant. A few others, Aspleniums especially, form small bulbils along and at the end of the fronds, which can be removed and rooted, or can be rooted first and afterwards separated. Those varieties that produce spores freely and can be readily increased in this way, are by far the most valuable to the commercial grower, and as the great bulk of our Ferns are so propagated, I shall speak of this method only. Nearly all the Adiantums, the Pteris, Onychiums, etc., the Ferns most useful for florists' work, can be quite easily propagated in this way. Yet the

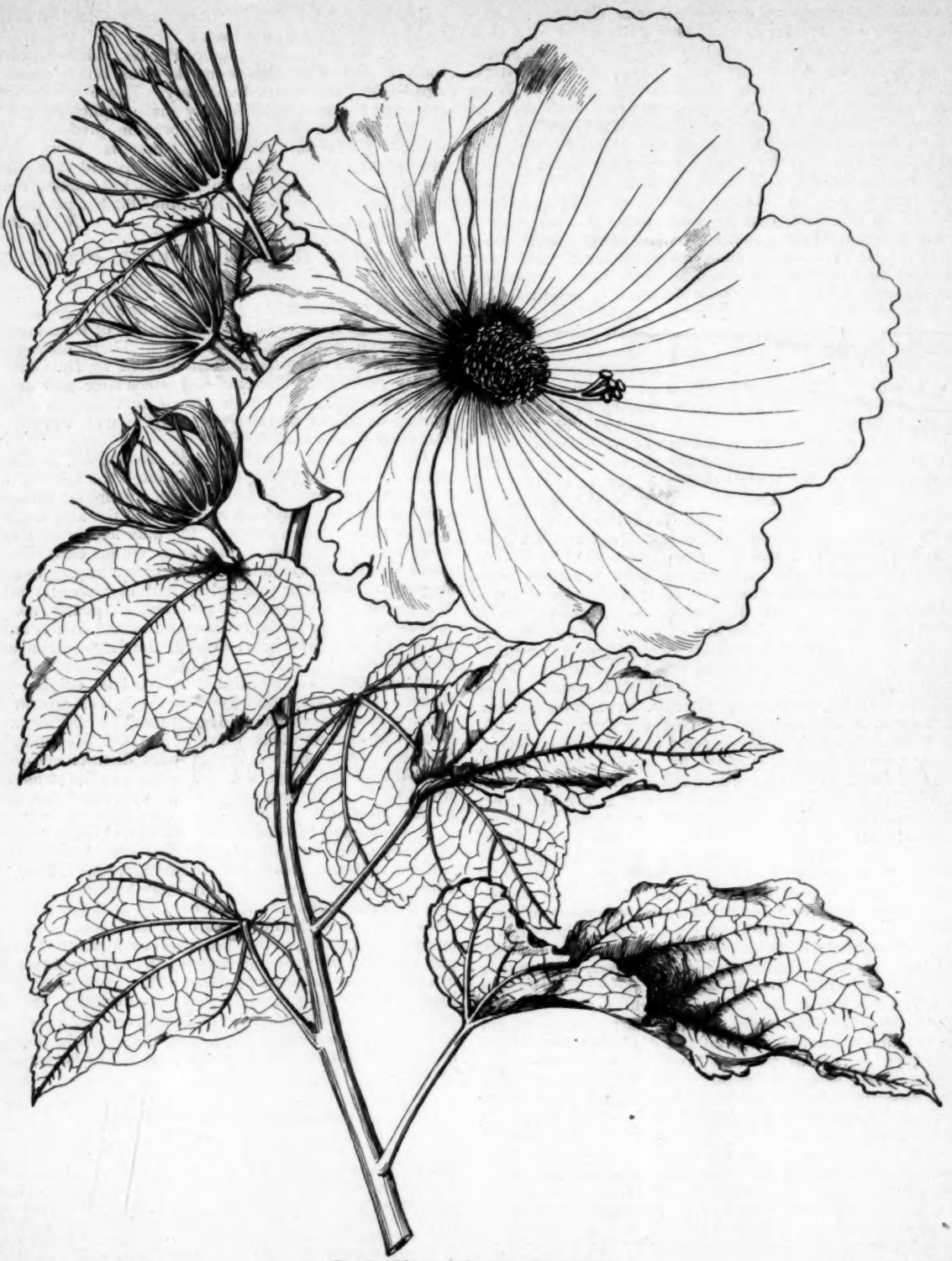

Fig. 68.—Hibiscus lasiocarpus.—See page 425.

work is rather tedious, requiring care and labor, and many disappointments may be experienced. The collection of the spores at the proper time is the first and all-important matter. This can only be done by close and frequent examination of the fronds—the dark color of the sori, and, if closely examined, the bursting of the sporangia or cases containing the spores, will indicate when they are ripe and fit to remove. The fronds should then be cut and carefully wrapped in smooth wrapping paper, placing the packages in some warm, perfectly dry place. After a week or so the spores will have shed, when they should be sifted clean, and either sown immediately or stored away in tightly corked vials until ready for use. The sooner they are sown the better, however, as those of many varieties soon lose their vitality.

I would recommend spring and autumn as the best times to sow most varieties of Fern spores—those sown in the early fall will make plants for spring and summer sales, while the spring sowing will make stock for fall and winter. Some rapid growing kinds, such as *Pteris tremula*, should be allowed two or three months' less time, otherwise they will become too large for use. The soil used should be about three parts peat or leaf mould, two parts loam and one of sand; this should be sifted fine and then baked, so as to destroy any insects or other seeds that are sure to be in the soil, which, if allowed to grow, would soon crowd out the minute Fern plants.

Shallow pans, six inches square and two inches deep, are preferable to anything else. When the time for sowing arrives, the pans should be prepared by placing a thin layer of broken pots or charcoal in the bottom for drainage. They should then be filled with the prepared soil and the surface pressed firm and even. After thoroughly saturating the soil with water the spores must be lightly dusted over the surface. This one watering before sowing will generally be sufficient until the green scum, denoting the first stage of growth, appears, especially if the pans are placed an inch or so apart in the rows, so as to leave space for watering between. Watering overhead should not be practiced if it can be avoided during the earlier stage of growth. After planting the pans are arranged in a close, well shaded frame. They should be kept close until the pan is covered with the mossy looking growth, the sash being raised only a little every day to permit a change of air. If the weather should be wet and hot, more air should be admitted; fungus and damp must be prevented, if possible, and, as growth advances, more air should be admitted until the time arrives when it will be necessary to close the sash only during the sunny and dry part of the day, and then only partly. The plants must never be allowed to get dry, but should be kept moist, although not too wet. When large enough, my custom is to transplant small clumps into other pans. This is done as a precaution against damp and fungus; when crowded together they will damp off very easily, and, besides this, many plants will be crowded out. The transplanting causes some trouble, but it pays, for, when less crowded, the young Ferns make much better headway. When sufficiently rooted, individual plants should be separated and transplanted again into pans and should be left there until well enough rooted to pot off into thumb pots.

For the first potting the soil should be about the same as that prepared for the seed. The young plants should be kept close for a week or so after being potted and should never be allowed to become dry. After this first potting I use soil of about two parts peat, three parts loam and one of sand. It is not sifted now, but thoroughly mixed and chopped sufficiently fine for use. A certain portion of peat is preferable, yet when this cannot easily be procured, light fibrous loam and sand will answer very well; when Ferns are wanted for the fronds, it is really better than lighter soil. The fronds will be harder and keep better after being cut.

When once established in thumb pots the Ferns are comparatively safe, and the care is merely a matter of potting on as larger plants are required. Starving for want of a larger pot will seldom kill them; they can be kept a long time, if necessary, in this condition, and then, if shifted on, will start ahead immediately and make the best kind of stock in a very short time.

Established plants should be allowed plenty of fresh air and water when the weather will permit, keeping the houses well shaded during the warm months of the year. In winter much less water and no shading is required. If kept too close and dark, then the condensation of the moisture in the house will cause the foliage to damp.

This applies only to those easily cultivated varieties of Ferns that are grown in large quantities to supply the store trade. Some of the choicer kinds—those that can only be propagated by division, for instance—require far more careful handling.

Adapted from an address at the Florists' Convention, by C. D. Ball, Holmesburg, Pa.

The Charles River at Wellesley.—See page 422.

Herbaceous Plants in Frames.

Among what are known and grown as hardy herbaceous perennials are many kinds of plants that had better be wintered in cold-frames than trusted to the uncertainties of the weather in open borders. Some of these, for instance *Lobelia fulgens* and *Pentstemon Hartwegi*, are not quite hardy here; others, as *Helleborus niger* and *Cyclamen Europæum*, although hardy enough, can only be enjoyed when grown under cover of houses or frames where we can have their blossoms clean and perfect; and although *Anemone Japonica* and *Verbena venosa* can be mulched with sufficient care to protect them from any injury by frost, it is much less trouble to lift the roots that are needed and save them in a cold-frame. Tritomas and Pampas Grass, too, may be mulched with dry Oak leaves deep enough to exclude any frost from the soil; but here again there is a danger that water may collect around the crowns of the plants and rot

them, and it is safer to lift them with good balls of earth, and keep them in cold-frames or pits. Wallflowers, Hollyhocks and Canterbury Bells are among the commonest flowers in European gardens, but rare in ours because they are not quite hardy. True, with a mulching of dry leaves we may preserve them fairly well, and it sometimes happens that they survive the winter unprotected; but in order to preserve them surely and in good condition the frame must be resorted to, especially in the case of Canterbury Bells. The place in which a plant is growing in the garden often has a great deal to do with its hardiness. Double-flowered Daisies and *Primula Japonica*, for example, growing in open, exposed situations, would probably be winter-killed, whereas if grown in somewhat sheltered places, as in the neighborhood of light-rooting shrubs, they would be hardy enough. But in any case the frame is the safest place for them. In ill-kept gardens and in wild places many plants will survive the winter that would surely perish in prim, well-kept gardens. In neglected gardens, after the glow of summer is over, the plants are disregarded and the weeds allowed to grow; the old stems are not cut over from the Pæonias, Larkspurs, Veronicas or Pentstemons, and when the tree-leaves fall they gather and compact themselves around these plants, and are there retained by the stems broken and bent over them by the winds. This is the best and most natural protection, for the stems arising from the crown of the plant prevent the leaves from becoming a solid, wet mat over the crown in winter. This is the way wild plants are preserved. But in tidily-kept gardens where an accumulation of dead stems and loose tree-leaves is not tolerated, the hardy plants, after being cut over, must be mulched with a dressing of rotted manure, or a thin layer of thatch or sedge, while Santolinas, Acanthuses, scarlet Anemones, Gibraltar Candytuft, *Myosotis dissitiflora*, *Helianthus multiflorus*, Alstrœmerias, young Snapdragons, *Stokesia cyanea*, herbaceous Erythrina, *Senecio pulcher*, *Salvia Pitcheri*, Libertias and Zauschneria, and all others of whose perfect hardiness there is any question, should be removed to cold-frames.

These frames should be in a warm, sunny, sheltered part of the garden, and on slightly rising ground, with a south or south-east facing slope, so situated as to drainage that no water can lodge about them or run towards them. For such frames pine plank or hemlock boards are best; spruce rots out in a couple of years. As hemlock warps and slivers, the upper board all around should be pine plank, and under that hemlock will answer. Pine cross-bars drilled along the middle should be used for the sashes to rest on. The three-by-six-feet sash is the best and handiest made, and for this sash the frame should be five feet nine inches wide inside; this allows a solid rest for the sash, and the water can run off without wetting the frame. For ordinary use a cold-frame need not be deep, twenty inches at the back and ten inches in front is a serviceable depth; but even this should not all be above the ground level—twelve inches at the back and six inches in front is high enough above the outside level, and even then the frame should be banked up solid to the top with earth or ashes to keep all snug and warm. The more pitch the frame contains, the better will it shed the water and the warmer will it be in winter.

In filling these frames plant thickly, keeping the tall-growing and evergreen plants towards the back, and the low-growing ones near the front, and use light rather than rich soil. This is merely a winter store-house, and not a place to encourage growth and blossoms, as is the case with frames filled with Pansies, Primroses, Forget-me-nots, Crown Anemones and Violets, which are to grow and bloom during the winter months.

Glen Cove, N. Y. *William Falconer.*

Orchid Notes.

Cattleya Bowringiana.—This comparatively new species is now becoming popular, and is likely to prove a great acquisition by filling the gap between the summer blooming Cattleyas and the early Percivaliana or Trianæ. In growth and inflorescence it somewhat resembles the old *C. Skinneri*, but the flower, though a little smaller, is much superior in color, while the lip is enriched with a broad band of dark purple. The flowers appear before the growths are quite matured and last three weeks in perfection. It is a free grower, emitting a perfect mass of roots from the peculiar swollen base of the bulb. It should have strong heat and abundance of water during growth, but requires a long rest in a cool house, and should be started as late as possible in the spring, so that the flowers may appear in the early winter months.

The rarest Orchid in flower with us now is *Angræcum caudatum*, a native of Sierra Leone. Though not at all showy, the greenish brown of the flowers, contrasting so beautifully with the snowy whiteness of the lip, and the grotesque arrangement of the long-tailed flowers on the raceme, render it attractive and interesting. It is of erect growth, with thin, drooping leaves, about one foot long; it is growing freely here with the Vandas (which, by the way, we accord more heat than is usually recommended for them), in a basket filled with moss and charcoal. Black thrips will soon disfigure the foliage, unless care is taken to keep it well supplied with water at root and copiously syringed during favorable weather.

Another species from the same locality is in flower, *Angræcum distichum*, one of the smallest of the genus, producing stems about six inches high, with very short, fleshy, deep green, imbricate leaves, from the axils of which the flowers appear. These are very small and pure white, but so numerous that a well grown plant will often be one mass of bloom. Basket culture is best suited to this plant, with a compost of half peat and moss. Pegging down the stems will cause them to break freely at the heel, and so quickly make a bushy plant.

Ærides quinquevulnerum.—Though nearly half a century has elapsed since the introduction of this Orchid, it has never, until recently, been plentiful. It grows more freely than many of its congeners and may be depended upon every year to produce its handsome racemes of flowers. It is probably the showiest of the whole genus. The flowers are yellowish white, much speckled with purple, with five large blotches of the same color, which suggests the name. The flowers are also fragrant. A very rare variety, named Farmeri, is entirely devoid of any markings. This plant is from the Philippine Islands, and, consequently, should have heat and water liberally given. To avoid spot, care should be taken that the temperature be not low when the plant is wet.

Kenwood, N. Y. *F. Goldring.*

Native Asters as Garden Plants.

IT is only within the last few years that our native Asters have been considered fit subjects for the herbaceous garden, although in England they have been long appreciated, and Michaelmas Daisies, as they are there commonly called, form a part of the stock of the best nurseries. Flowering as they do, very late in the season, it cannot be denied that their decorative value is of the highest order, for they defy cold weather, and are but little injured by the fall rains. Long after their more tender rivals have succumbed to the severe frosts these Asters bloom away as though they rejoiced in the chilly weather, and seem many times more beautiful from the contrast with their brown and frost-bitten neighbors. If we have made a judicious selection of species and varieties, and exercised proper judgment in planting them, the garden will be a source of pleasure for a long time after the more costly, and often less beautiful, exotic summer plants have been cut away.

But the value of these plants does not lie entirely in their sturdiness and their ability to prolong the season of flowers, for they have an intrinsic beauty that compels our attention. Few people question the beauties of the perennial Phloxes as they are now grown, but we have to look back but a few years to find these much-admired plants represented by a few dull purplish-pink and white varieties, with small flowers and narrow petals. In their wild state the flowers of *Phlox paniculata* and *P. maculata* (the parents of our garden varieties) are quite inferior to many of the wild Asters, which undoubtedly are fully as capable of improvements, for, naturally, most of the Asters vary to a surprising degree, and, by careful searching, one may find varieties far superior to the types, and these should be carefully transplanted to the garden. It is best to collect them while in flower, for the best varieties may then be selected, and by transferring them to nursery rows they can be tested before placing them in a permanent position.

Out of the great number of species native to the United States the following are among the most useful: *Aster Novæ-Angliæ*, with large, deep blue-purple flowers, when given good cultivation, is a grand plant, growing to the height of six or seven feet, and literally smothered with its showy blossoms. Its variety, Roseus, is identical in every way except color, which is a bright rosy pink. *A. lævis* has deep violet flowers, like small Cinerarias, and will grow to the height of five feet. *A. Novi-Belgii* is very variable, both in habit and flowers, the best varieties being very handsome and useful. In color the flowers vary from pure white to deep purple. *A. turbinellus*

is very graceful in habit, with slender, much-branched stems, the large lilac-colored flowers appearing late in the season. Other satisfactory kinds are *A. Shortii, A. undulatus, A. cordifolius, A. patens, A. spectabilis, A. oblongifolius, A. amethystinus, A. ptarmicoides, A. linarifolius*, with its white variety, *A. ericoides, A. vimineus, A. multiflorus* and *A. dumosus*.

They need about the same treatment as would be given to the perennial Phlox, many of them doing much better when thinned out annually, as they are subject to mildew if grown too thickly, especially if they are somewhat shaded.

Newton Highlands, Mass. *Arthur H. Fewkes.*

Mildew on Roses.

HOW best to prevent mildew, or to clear the Roses of this troublesome fungus after it has made its appearance, is a question that often confronts the grower, and particularly at this season of the year, when the sun is still strong at mid-day, and so heating the houses that considerable ventilation is necessary to reduce the temperature. This operation often results in an attack of mildew upon such plants as may have been exposed to a cold draught.

Among the many remedies for mildew, sulphur, in one or another of its many forms, is always found most efficacious, and it is used in a variety of ways. The flour of sulphur has been used for many years for this trouble by dusting it over the mildewed plants. This mode of using sulphur is undoubtedly good at times, but in my experience a better way is this: Take of moderately strong tobacco-water, one gallon; add to it four ounces of sulphur, then boil the mixture for thirty minutes or a little longer. After it has cooled add one part of water to every three parts of the mixture, and syringe the affected plants. In bad cases a second or even a third application may be necessary on successive days. This mixture also tends to keep down green fly, thereby doing double duty.

Another mixture in great favor with some growers is sulphate of lime. A good recipe for this compound is the following: Take of fresh lime, five pounds; of sulphur, five pounds, and of water, six gallons. This should be boiled down to two gallons. After which it should be allowed to settle, and only the clear liquid should be used at the rate of half a pint of the sulphate to an ordinary watering-pot of water. The plants should be syringed with the latter mixture on two or three successive afternoons.

Sulphate of potassium has also been highly recommended, in the proportion of half an ounce of the sulphide to two gallons of water, and applied in the same manner as the preceding mixture. The unpleasant odor of the potassium solution may sometimes prove to be an objection, however.

Still another way of using the ordinary sulphur is by sprinkling or painting it on the pipes, the heat from which causes more or less of the sulphur to pass off into the atmosphere in the form of vapor. This latter method is hardly to be recommended for general use, for, unless used with great discretion, the vapor may be strong enough to bleach the flowers of many of the pink Roses, such as Catherine Mermet, La France and Bon Silene, and in this way may do almost as much harm as the mildew. As the above-mentioned Roses are also affected by tobacco-smoke, the mixture of tobacco-water and sulphur previously mentioned will be found particularly useful in just such cases.

Holmesburg, Pa. *W. H. Taplin.*

Very few so-called hardy perennials are sufficiently hardy to endure a northern winter without protection of some kind. This is what should be expected where many kinds we grow come from southern latitudes as well as from the temperate regions of the Old World. Truly herbaceous plants, such as tall Phloxes, Delphiniums, Asters and Helianthus, which die down completely, need the protection of stable manure, since in gardening operations, for the sake of neatness, we must remove from the ground the tops, or refuse, of the plants, which are their natural protection. Others, again, mostly biennials, such as Foxgloves, Sweet Williams and other species of Dianthus, Gaillardias, Geums, Canterbury Bells and Pansies, retain their foliage naturally, and when not removed to frames should be protected by leaves or pine needles to prevent alternate freezing and thawing. The same plan should be adopted with alpine plants, some of which are truly herbaceous, such as *Adonis vernalis* and Ranunculus of different kinds, while the majority are evergreen, such as dwarf Phloxes, Veronicas, Cerastiums, Arenarias and Iberis.

There are also many kinds, of which stock is required, which can be taken up and propagated during the winter. All such as we can push into growth and get cuttings from, we bring into the green-house about February 1st. Others we divide up and pot about March 1st, keeping them in the green-house only long enough to start them, and then place them in frames until the ground is open for planting. The cuttings—Phloxes, Veronicas, *Silene rupestris, Salvia Greggi, Onothera Missouriensis*, Monardas, etc.—we put into boxes, partly filled with sand, and covered with a sheet of glass; when rooted we gradually harden them off to be planted later in nursery beds.

Wellesley, Mass. *T. D. Hatfield.*

The New Tea Rose, Madame Hoste, is likely to prove the best of the year for cut flowers in winter, under glass, and suitable both for the amateur and the commercial grower. It is a French Rose, and it was sent out for the first time last November, and has, therefore, had no very extensive trial in this country. It plainly possesses all the good qualities of a Rose for winter blooming. It is very large, though opening freely, and has not the least suggestion of coarseness. Its form is of the best, and its color is the only thing to be urged against it. It is neither yellow nor white, but may be described as cream color, deepening to a darker shade towards the centre of the flower. It is so beautiful in every other respect that it must work its way into public favor. The plant is a vigorous grower and a free bloomer, and we may expect it to do well out-of-doors in some parts of the country, since it is well spoken of by English horticulturists who have tried it in that climate.

Philadelphia. *E. L.*

Callicarpa purpurea is particularly handsome just now; indeed, it is the only time of the year when it is. The flowers are so very small as not to be worth considering, but following them are berries in clusters of about twenty to thirty each, which in September and October are of a violet-purple color. As every leaf axil has a bunch, and the branches are sometimes two to three feet in length, bending over with the weight of fruit, it is an uncommonly beautiful sight.

The most strikingly beautiful tree, in flower at the present time in the vicinity of Philadelphia, is the Franklinia (*Gordonia pubescens*). It flowers when but a few feet high, commencing in August, and continuing until freezing weather stops it. There are many fine specimens hereabouts; one of the largest, a layer from the original tree in the Bartram garden, is at William De Hart's, Fifty-fourth Street and Woodland Avenue, Philadelphia. It is about twenty feet high, and at the present time (early October), loaded as it is with its large, single, white, Camellia-like flowers, it is an unusual and beautiful sight. The tree can be increased by layering. If good soil be placed about it, and the layer not disturbed for two years, a strong, well-rooted plant results.

Referring to the notes sent you in the spring in regard to the hardiness of the Loblolly Bay (*Gordonia Lasianthus*), I would now add that one of the plants flowered September 15th. May not this be the first instance of its flowering out-of-doors so far north? The blooms, while in general appearance like the better known *G. pubescens*, are but about half the size. The leaves are thick and shining, and not unlike those of *Photinia serrulata*. Nearly all of the twenty-five plants set out last year survived the winter, though injured more or less. Having now become better established, they will doubtless get through the next winter more easily.

Germantown. *Joseph Meehan.*

The Forest.

The Forest Vegetation of North Mexico.—VIII.

Pinus macrophylla, Engelm., the species which, next to *P. Chihuahuana*, grows at the lowest elevation, is the first tree to claim our attention as we proceed to consider in detail the composition of the forests of the Cordilleras. On all the ranges about the divide we have seen it scattered with the species last mentioned; but in some localities among these ranges it must be more multiplied, since there are several saw-mills in the region. About the base of the mountains on the foot-hills and in the valleys amongst these it is by far the most abundant Pine; whilst over the gravelly plain bordering the foot-hills it spreads out for a few miles to the exclusion of most other trees. Because it makes a larger growth and yields clearer lumber than *P. Chihuahuana*, is more accessible than *P. Arizonica*, and far more common than *P.*

strobiformis, it furnishes nearly all the lumber now cut in the region, the two mills of the vicinity drawing their supply from the plain. In the deeper soil of the plain, where it attains fullest development, its diameter is from one and a half to more than three feet, and its height from forty to seventy feet. Never standing crowded on this plain, its branches are ample. As these begin low on the trunk, the majority of the trees afford but one or two saw-logs. The character of its bark is equally variable with that of *P. Arizonica* and *P. ponderosa*, and is undistinguishable from that of these two species, in trees of middle age being dark and more or less furrowed; in mature specimens reddish, smoother and reticulately cracked. Vigorously growing trees in open situations, the symmetrical outline of their broad heads closely filled out with dark green foliage, to which its long leaves (ten or fifteen inches long) give a massive look, its summit distinctively an ogee arch rather than a dome, present an appearance of unusual beauty.

Here on the Cordilleras we seem to have reached the centre of distribution of *Pinus Arizonica, Engelm.* In this great Mexican forest this species seems to take the place, in respect to abundance, wide distribution and value as a timber tree, held in the forests of the western United States and British Columbia by the closely related *P. ponderosa, Dougl.* It ranges through 3,000 feet of elevation from the valleys and cañons of the base to the highest summits. In the deep cañons and fertile valleys it is unsurpassed in size, showing lofty, clean stems three feet in diameter; on the summits it is still a noble tree, and, taking scarcely disputed possession of these, it there forms close forests. Its lumber seems to be prized by the Mexicans equally with that from *P. macrophylla;* but, because the trees are mostly found at a greater elevation, it is far more difficult to secure.

Pinus strobiformis, Engelm., as far as I have observed it, appears to grow scatteringly—a few trees scattered along cañons, a lone specimen here and there on high, cool slopes, or a few on the ledges of summits on the skirts of belts of *P. Arizonica.* Such, also, is my recollection of its habit (if we refer to this species, Engelmann's *P. reflexa*) on the mountains of southern Arizona. Nowhere have I yet seen a good grove of this Pine. Its short horizontal branches and tall stems give it an appearance exceptionally slender for a Pine. A diameter greater than two feet, I think, I have never seen exceeded, while its height equals that of any of its companions. As it is one of the White Pines, with characters of bark and leaves closely resembling those of *P. Strobus*, its lumber, if obtainable in any amount, would doubtless be found of the best class.

Pinus Chihuahuana, Engelm., appeared scattered abundantly over the lower benches and foot-hills, a small, slowly-growing tree, as usual, and here safe from the lumberer's axe.

Only one other Pine, seen by me as yet on the Cordilleras, remains to be described, *Pinus cembroides, Zucc.*, the Mexican Nut-Pine, which, like the related species, *P. edulis*, of New Mexico; *P. monophylla*, of Utah, and *P. Parryana*, of Lower California, contributes largely to the sustenance of the Indians by its large oily seeds. For any other purpose this tree is comparatively worthless. Its habitat is the warmest and most arid slopes and ledges with meagre soil, where even *P. Chihuahuana* will seldom crowd upon it. Occupying together with a few shrubs such open situations, it branches near its roots, and forms a rounded top, whose breadth equals its height, which is from fifteen to twenty feet. *C. G. Pringle.*

The Forests of Europe.

THE French Ministry of Agriculture has issued some interesting statistics respecting the distribution of forests in Europe. The total area of Europe laid out in forest—exclusive of Turkey, Bulgaria, Bosnia and Herzegovina, omitted in the official statement—is set down at 286,989 million hectares, or about 708,862 million acres; that is, about 18.7 per cent. of the total area of Europe is forest land. In proportion to its total area, Great Britain and Ireland has, of all countries in Europe, the least extent of forest, amounting to only 4 per cent. of its surface, and, in proportion to the number of its inhabitants, enjoys, by far, the least allotment of forest, amounting to only 0.036 hectare, or 0.089 acre, *i.e.*, considerably less than the tenth of an acre to each inhabitant. The country in Europe next lowest in the forest scale is Denmark, with 4.8 per cent. of forest land, or 0.09 hectare to each inhabitant; that is to say, in Denmark there is an average of between two and three times the extent of forest land to each inhabitant that there is in Great Britain and Ireland. The third of the countries of Europe in the ascending forest scale is Portugal, with 5 per cent. of forest land and 0.11 hectare to each inhabitant, *i.e.*, an average of three times the amount of forest land to each inhabitant of Portugal that is allowed to each inhabitant of the United Kingdom. Holland has 7 per cent. of forest land and 0.05 hectare to each inhabitant, or about one and a half times as much as to each inhabitant of the United Kingdom. The country in Europe possessing most forest is Russia in Europe, with 200,000 million hectares—*i. e.*, 37 per cent. of its whole area and 3.37 hectares to each inhabitant—that is, each inhabitant of Russia in Europe has an average of nearly 94 times the extent of forest land allotted to each inhabitant of the United Kingdom. In its percentage of forest land and the amount of forest to each inhabitant, Sweden, however, stands still higher. With 17,569 million hectares of forest, Sweden has 39 per cent. of its land in forest, and so 3.84 hectares of forest to each of its inhabitants. Norway, with 24 per cent. of its area in forest, allows each of its inhabitants an average of 4.32 hectares of forest, or 120 times as much as is allowed to each inhabitant of the United Kingdom. Hungary has 29 per cent. of its area in forest, or 0.58 hectare of forest to each inhabitant. France possesses 9,888 million hectares of forest, or 17.7 per cent. of its total area, and so allowing 0.25 hectare of forest to each of its inhabitants—nearly seven times as much as is allotted to each inhabitant of the United Kingdom. —*The Garden.*

Correspondence.

The Responsibilities of Florists.

To the Editor of Garden and Forest:

Sir.—Your recent editorials on the responsibilities of our florists seem to me a word spoken in season. It is true that our florists have done much to improve the taste of the public, but there is still much for them to do. It does not need that one should be of a great age to remember when no taste whatever was shown in the arrangement of our winter flowers. Solid, flat or spherical or conical constructions of wired flowers, massed together without foliage and with no regard to the shape of individual blossoms, were the only bouquets in use. The first novelty in the right direction came from Boston in the shape of bunches of long-stemmed flowers, chiefly Roses, which, even in other cities, were called "Boston bouquets." Eagerly accepted by the public, they soon ousted the formal bouquet and their influence was quickly perceptible in arrangements of all other kinds. To-day, as you say, one can buy flowers in no other part of the world so beautifully arranged as we can buy them here, except, perhaps, in Paris; and even Paris is behind us in the matter of variety. The Germans arrange their growing plants more tastefully than we do, but of the artistic possibilities of cut flowers they have duller perceptions, and the practice of wiring is far more extensively practiced than in America.

Nevertheless, it is only in a few of the best shops in the larger cities that taste is displayed. Our best work is very good, but our worst—and there is still a great deal of it—is undeniably bad. A long list might be made of "floral designs" recently produced and viewed with satisfaction by their authors and the public, which would seem too bad to be true in a community which calls itself civilized. Not long ago I saw carried through the streets of New York on the wagon of a florist a horse about half life-size, composed of white Immortelles, with the saddle and harness of colored flowers and a flowing mane and tail of Pampas Grass. I am told that at the funeral of an expressman in Boston there was, not long ago, displayed a large trunk of white flowers bearing, in red, the poetic legend "C. O. D." I know of a florist in Chicago who wrought for a funeral a white pillow in the centre of which was a purple horse-shoe, and who could not be brought to perceive the grotesqueness of thus placing the symbol which means "Good luck to you." And here is a quotation from a Boston paper describing a device which was sent to the bier of General Sheridan and called "one of the most beautiful" of its kind:

"The piece is nearly six feet high, six feet long and four feet in width, and represents 'Gates Ajar.' In the centre are two large pillars, from which are hung two gates. Joining the pillars is an arch, having in the centre a cross and crown. Suspended from the arch is a pure white dove, and on the top of each pillar is a large star. Looking through the open gate and picket fence is a representation of the Garden of Eden, in which flowers, roses and ferns abound in artistic profusion. On the right corner is a beautiful bouquet of roses tied with satin ribbon. Across the front is the inscription, 'Light lie the earth on thee.' Some 4,000 Asters and a large number of Crimson King Carnations, Chrysanthemums and Roses were used in making the piece, which will be sent as the gift of a number of United States Senators."

So long as pretentious abominations of this kind are created how can we really congratulate ourselves on our taste? And who could look at the use that was made of flowers last Decoration Day, and feel that, as a people, we had a proper sense either of the beauty of flowers or of the meaning of the word decoration in its general sense?

I know that it must be extremely difficult to do really well on public occasions like this, when a hundred hands must help to dispose of a myriad gifts of all possible varieties and degrees of beauty. But the fact is not that we did not do really well, but that we did so very badly, that, in New York, at least, as I can say from careful observation, few examples could be found where a spark of good taste was apparent. Here not the florist, but the public at large, was perhaps responsible; and doubtless in the case of many of our worst "set pieces," like the expressman's trunk, the purchaser gives the idea, and the florist is simply charged with its execution. But in many cases the florist may be to blame; and in all, I believe that a word of discouragement and better advice from the florist would change the current of the purchaser's wishes. It is hard to say, in this as in all other matters, just how the law of supply and demand affects the results we see. But, as one of the public, I wish to emphasize your statement that if florists will consistently point in the right direction the public will surely follow. If it likes bad things, it is because it has not seen enough good ones to know the difference. The taste of our people is not naturally bad; it may be uncultivated. Show them excellence, and they will admire, and when they next see ugliness they will recognize it for what it is. Anything really lovely is sure to find a welcome even from the casual passer in the street. The most tastefully arranged florists' windows in New York are those which people stop to notice—not the windows which contain the greatest amount of novelties or the most striking flowers. An example of this fact struck me forcibly last winter. Many windows, filled with a profusion of costly blossoms, tastelessly heaped together, were unremarked, while there was a constant crowd around one which showed nothing but a mass of Ferns and other green, and in the centre a large plain blue vase, in which stood half a dozen branches of pink-flowered Japanese Plum.

Marion, Massachusetts. *M. G. Van Rensselaer.*

The Exhibition of the Architectural League.

To the Editor of Garden and Forest:

Sir.—The Architectural League of New York announces that its fourth annual exhibition will be held in December. In connection therewith a competition for the gold and silver medals of the League will be opened to all architects and students under twenty-five years of age residing in this country. A similar competition, organized last year, dealt with the designing of "A Clock Tower on a Village Green," and called forth some excellent drawings. The problem chosen for this year is "The Tomb of a Celebrated Architect." Admirably adapted to reveal the artistic skill and taste of those who will compete, as distinguished from their mere "originality" in impulse and audacity in execution, this problem is, moreover, one which, in the results we may anticipate on the exhibition wall, should be of particular interest to landscape architects and the public at large.

As has often been pointed out in Garden and Forest, our cemeteries are, in theory, one of our chief titles to respect as landscape gardeners and lovers of beauty; but, in concrete fact, they often fall below the ideal at which they aim. In no point is success less often achieved than in the erection of large and costly structures—vaults above ground, shafts, architectural monuments or sculptured figures—commemorative of an individual or a family. Year by year such conspicuous memorials arise in growing numbers in the burial-grounds near our large towns. In Greenwood, for example, there are very many, some of home manufacture, and others imported from Italian workshops. But, varying though they do between the extremes of severity and ornateness, they seldom wear an aspect which even moderately satisfies the eye or corresponds with the sentiment which should prevail in such a cemetery. When they are not too gloomy to seem like monuments of the Christian dead, they are too frivolous; and even if the general effect is nearly right, the inartistic execution apparent upon a near view destroys much of their claims to approval. Some of the façades to vaults excavated in a hill-side look like ice-houses or coal cellars, others like the homes of Egyptian mummies. Some of the family tombs imitate little heathen temples, others suggest kiosks, and others soda water fountains. When sculptured figures are used, the hand of the stone-cutter rather than the artist is most frequently revealed; and the plainer shafts are too commonly devoid of the only qualities which could make them works of art—beauty of proportion and grace of profile. They might be taken as relics of some long past stone-age rather than what a community can secure which has architects to do its bidding. I do not doubt that there are other good large monuments in Greenwood, but the only ones I can recall at this moment are the graceful Gothic tomb which commemorates those members of the Brown family who perished years ago in the wreck of the "Arctic," and the Stewart tomb near the main entrance, the sculptured decorations of which were designed by Mr. St. Gaudens in his earlier years. This, which is a façade merely, the vault being excavated in the side of a bank, hits the right medium, I think, between over-sombreness and frivolity; the sentiment of its decoration is Christian, and in execution it is a work of art. It is dignified but not pretentious, beautiful but not obtrusive.

If the sculptor or the architect, in the true meaning of the words, were more often employed in similar work our cemeteries might speak with honor to the living as well as the dead. The coming exhibition of the Architectural League ought to mark a noteworthy step in this direction. Of course, as the competitors will be students and not practiced masters, the designs it shows will not prove—they can merely indicate—what good work we might secure in the way of mortuary monuments. Yet there are many men of skill and taste even among our novices in architecture, and doubtless some of the coming designs will be intrinsically worthy of much praise. The programme wisely guards against exceptional extravagance in design by prescribing within comparatively narrow limits the size of the tomb and of the lot upon which it shall stand; and although a tomb appropriate to a great architect may not give us with precision a type which would serve for ordinary mortals, yet its peculiarities may very likely be confined to its decorative motives alone. Therefore I venture to bespeak for the exhibition the notice of all who are concerned in the improvement of our cemeteries, and who believe that the way to improve them is to bring in the artist where the artisan has ruled too long.

New York. *George Cumming.*

Japanese Iris from Seed.

To the Editor of Garden and Forest:

Sir.—In Garden and Forest, No. 34, page 402, Mr. A. W. Fewkes has an important article on raising Japanese Irises from seed. My experience differs from his in regard to the fertility of flowers which have not been artificially fertilized. Last year I bloomed ten plants for the first time. The plants were not large; one bore but a single spike of bloom, and many flowers were cut. From the seed which set and ripened from insect fertilization four hundred plants were raised this summer. During the present year some flowers were artificially hybridized; but those not so treated have, in almost every instance, developed full seed-pods. My culture does not differ essentially from Mr. Fewkes', so that no reason for the discrepance of experience can be suggested other than a possible cause in the difference of locality.

Boston. *Robert T. Jackson.*

Notes.

The delicate and fragrant flowers of *Clematis crispa* are still opening in considerable abundance. The vine has been in bloom five months.

Mr. S. H. Vines has been appointed Professor of Botany at the University of Oxford in place of Professor J. B. Balfour, who was recently called to Edinburgh.

Owing to the reduced state of the funds at command of the California State Board of Forestry, the offices of Botanist, Engineer and Special Agent have been declared vacant from the 1st of November.

According to Professor N. S. Shaler, the value of the artificial manures manufactured in this country from mineral phosphates already amounts annually to $30,000,000, and the industry is but at its beginning.

The oldest Rose bush of which there is any authentic record is growing against the old church at Heldersheim, in Germany. Eight hundred years ago, it is said, Bishop Hepilo caused a trellis to be erected to support it. The main stem is thicker than a man's body.

The extraordinary force exerted by growing Fungi was well shown the other day in a New Hampshire village. It was noticed that a cone about seven inches in diameter was rising in the middle of an asphalt walk. Beneath it a Mushroom was discovered, which had cracked and raised a solid stretch of asphalt two inches in thickness.

Five new experimental stations for the study of Sorghum and its manipulation are being organized by the Agricultural Department in Washington. One of them will be in New Jersey, one in Louisiana and three in Kansas. The appropriation for the work exceeds by $100,000 that of any previous year. Dr. Neale, of the Agricultural Station at New Brunswick, N. J., has spent the past summer studying European methods of sugar manufacture.

Vilmorin & Co. recently exhibited before the *Société Nationale d'Horticulture de France* the fourteen varieties of *Gladiolus Gandavensis*, which long experience shows to be the latest blooming of the innumerable varieties grown in the neighborhood of Paris. They are named: Abricoté, Atlas, Béatrix, Coquette, Docteur Fontan, Gallia, Médicis, Etna, Mimos, Rosini, E. Souchet, Eugene Scribe, Sceptre de Flore and Ambroise Verschaffelt.

Two of the three huge and ancient Oaks which have stood for centuries near the "Bush Mill," in the neighborhood of Frankfort-on-the-Oder, have recently perished through the effects of storms. The last to fall measured over twenty-one feet in circumference. Its top was blown off by the wind, and although the trunk was still sound, the Forestry authorities decreed that it should be felled. The one which remains has a circumference of twenty-three feet.

The large Bald Cypress (*Taxodium distichum*) in the old Bartram Garden, West Philadelphia, is still alive, though apparently near its end, as but a few live branches exist near its top. A recent measurement of this tree, at four feet from the ground, gave twenty-seven feet as its circumference. At a distance of about twenty feet from the trunk, along the ground, appear numerous "knees," which always excite curiosity in those who have not seen the trees in their native places.

The Countess of Kenmare has planted a large collection of Australian trees in her beautiful grounds near Killarney, in Ireland. As a proof of the mildness of the climate in this region, it may be noted that a *Dracæna australis* flowered this season near Cork, after having been grown in the open air for seven years, and reached a height of fifteen feet. The head of bloom lasted in all its beauty for two months, and measured three and one-half feet in height by three feet in breadth.

The bad taste sometimes displayed in this country in the conception and arrangement of floral designs is quite as often and as conspicuously shown in other lands. For example, among the set pieces recently exhibited at a horticultural show in Cologne, there was one which represented a life-size baby in swaddling clothes, and another in which a swan was figured by means of the detached petals of Water Lilies. Beyond this last, misplaced ingenuity could hardly go; for, to dismember the flowers employed, is, of course, to deprive a result of all title even to the name of a floral arrangement.

The fruit growers of Sutter and Yuba Counties, California, after twenty-five years' experience, do not speak favorably of irrigation. At a recent meeting of the Sutter Horticultural Society many of them bore testimony against the practice. Instead of the use of water, they urged the use of cultivators and pulverizers in orchard and vineyard, which was regarded as better, cheaper, healthier, and certain to produce richer, sweeter and better flavored fruit than artificial moisture. The fruit grower, like the wheat grower, must plan to meet average conditions. He cannot plan for extraordinary seasons, or, in other words, he cannot create costly irrigation works that may not be needed once in twenty years. Besides, the driest hills and vales will not produce a bountiful crop of fruits with the most abundant artificial water supply every year; kind nature will have her rest occasionally.

Professor Maynard, of the Massachusetts Agriculture College, finds the Worden by far the best Grape to plant for profit in New England. It is equally hardy, productive, and of as good quality as the Concord and more than a week earlier. We find it a decided improvement on the Concord in quality. Professor Maynard pronounces the Brackman more vinous in quality and nearer the perfect Grape than any variety except Iona. It ripens with the Delaware, but is not quite as sugary. In foliage it resembles the Clinton and it has not mildewed. The fruit of the Iona is of excellent quality, but it is tender, with foliage liable to mildew and fruit to rot. If subsequent experience confirms the last two seasons' trial of the Brackman, which so closely resembles it in fruit, this Grape will prove a valuable addition to New England vineyards.

One of the finest gardens in India is that of the Nizam of Hyderaban in the Dekkan. The horticultural skill of the country, developed by centuries of experience and lavish expense, has been taxed to the utmost to produce the labyrinths of shade, the brilliancy of color and the clouds of perfume which all Orientals love. Thick plantations and shrubberies are combined with gorgeous designs, composed of bright-colored flowers, which, we may believe, Oriental taste has made more beautiful than those we commonly see in western countries; and a large use is also made of small plants in pots. An idea of the magnitude of the garden and the expense of maintaining it may be gathered from the statement that it contains six million potted plants, each of which is watered every day. A natural arrangement seems to have been adopted for the most part, as a recent writer in *Harper's Magazine* speaks of "miniature lakes . . . laughing nooks, now a bit of jungle and now a broad and beautiful open space, where the distant view was enchanting."

The *Times-Democrat*, New Orleans, states, on the authority of our consul at San Salvador, that the fibre of the Banana is one of the valuable products of the soil which is now largely suffered to go to waste. This fibre, which may be divided into threads of silken fineness, extends the length of the body of the tree, which grows without a branch from ten to fifteen feet high, and has a circumference at the base of two and a half to three feet. In Central America, the fibre, with no preparation except drying, is used for shoe strings, lariats and cords for all purposes. In its twelve months of existence, the Banana trees bear only one bunch of fruit, but from two to four or ten trees spring from the roots of the one that has fallen. At home the bunch of Bananas is worth fifteen cents, and the dead tree nothing, though, if the supply were not inexhaustible, the latter would be worth ten times the value of the fruit to a cordage factory, paper-mill or coffee-sack maker. The Banana leaf, with stems of the toughest and finest threads, is from two and a half to three feet wide, and ten to fifteen feet long, and serves the native women of San Salvador as an umbrella in the rainy season, a carpet on which to sit, and a bed on which to rest.

Bulletin No. 39, from the Department of Entomology of Michigan Agricultural College, contains an admirable account of the summer's experiments with insecticides. It has been demonstrated that it pays to spray Apple-trees with London purple to protect the fruit from the codling moth. The spraying should begin as soon as the blossoms have fallen. If the poison is applied earlier it endangers bees and other insects which help to distribute the pollen, and it may do harm to the honey. One application is enough unless a heavy rain follows, when it is well to spray a second time. One pound of the purple to 100 gallons of water is strong enough mixture, and the second application should be weaker. Several good pumps and spraying nozzles are described It is found that the same poison applied two or three times is of advantage against the curculio. There is a probability that lime-water will accomplish the same result, as has been explained in this journal. If so, this will be preferable to the arsenites, as it does no damage to the leaves, and it is better to avoid the use of poisons when we can. It has been found that air-slacked lime, to which has been added some crude carbolic acid, will repel the attacks of curculio. Professor Cook substituted plaster for lime, and found it more convenient, as it did not fly so badly as the lighter lime. He used one pint of the crude acid to 100 pounds of plaster, and with this both Cherry and Plum trees were dusted from a tall step-ladder. The mixture should be applied just as the calyx is falling from the fruit, or just as the curculio begins to lay its eggs. The Plums and Cherries on the trees thus treated were practically free from worms, and the application did no harm to the trees. The same remedy would probably prove successful against the curculio on Pears and Apples, but it would hardly prevail against the codling moth.